REMARKS

Applicants have canceled claims 1-69, maintained claims 70-75 and added new claims 76-86. The present independent claims are now numbered 70, 76 and 82. All of the independent claims include a limitation incorporating "choosing instructional strategies in a random pattern" and wherein the choice of strategies favors or increases the use of those instructional strategies having a weight indicating a greater likelihood of greater success of the student's instruction. The office has indicated in a statement of reasons of allowance for prior claims 63 and 69 that claims including these limitations are allowable, all of which limitations are incorporated into independent claims 76 and 82, respectively. Applicant requests consideration of new claims 76-86, and prompt allowance thereof.

Claim 70 has been amended to correct the spelling of the word "identifying" (a 'y' was missing.)

The Office, in its most recent action, rejected independent claim 70 and dependent claims 71-75. Applicants believe that this rejection was in error, as claim 70 includes the language "choosing instructional strategies in a random pattern, the choice of strategies favoring the use of those instructional strategies having a weight indicating a greater likelihood of greater success of the student's instruction", which the Office indicated in the same paper was directed to allowable subject matter (for claims 63 and 69.) Applicants believe that the Office overlooked the presence of that language, and therefore reconsideration of claims 70-75 is requested.

Now although applicants have canceled claims 57 through 69, applicants argue that these claims are patentable even in light of references cited in the Feb. 8, 2005 office action, which will be discussed below.

Applicant now addresses the items of the office action mailed June 2, 2004.

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1. Claim 57 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 4,985,697 ("Boulton"). It is particularly alleged that Boulton discloses weight values assigned to instructional strategies, and the initialization and adjustment thereof (pointing to col. 8 lines 3-6, 35-42 and col. 4 lines 21-32).

Applicant traverses this rejection on grounds that Boulton does not disclose weight values corresponding to instructional strategies that are adjusted using a qualitative assessment of a student's mastery of a concept. Applicant will first accept, arguendo, that Boulton's buffer "proportions" in his memory utilization scheme that are values within the meaning of "weights" as claimed. Under the arguments of the office Boulton's "weights" would presumably correspond to the horizontal lines of varying length assigned to the several modalities shown in figure 4. The "current modality" is longer, which would indicate that more pages are stored for that modality. Referring to the paragraph beginning col. 8 line 3, blocks corresponding to the alternate modalities are maintained in RAM (avoiding a delay of reading from tape) so a modality switch can be accomplished rapidly. In that event, the "system's memory management shifts to re-center on the new current modality."

Col. 8 lines 28-34 indicate that the amount/proportion of blocks buffered for each modality is controlled by an algorithm loaded on initialization. The algorithm appears to provide proportions between the current and alternate modalities, and presumably might also specify amounts of read-ahead and look-back caching for each modality. The use of "re-center" cat col. 8 line 12 indicates a relationship between the modalities, programmed in the algorithm. Looking to figure 4, modalities 2 and 3 are related to modality 1 (i.e. they are shown in proximity and of similar size), in that the algorithm is written to consider a likelihood that the student will switch to modalities 2 or 3 from 1, but a lesser likelihood that he will switch from 1 to 4 (as modality 4 is represented by the smallest line.) Presumably the algorithm defines buffer "proportions" to use for each of the modalities when any are selected to be current.

The Boulton disclosure appears only to consider an algorithm that is fixed (i.e. it is read from the tape at initialization and maintained by the system while the lesson is presented, col. 8 lines 28-46.) The buffer proportions are controlled only by the algorithm, with only the "current modality" as an input. This is further reinforced by Boulton's disclosure that a modality "switch" may be effectuated by the user pressing a control key (col. 3 lines 4-6 and "function key 4" in figure 5.)

Now Boulton does say that a modality switch may be called for "via quiz or test" (col. 8 lines 10-11), which would presumably constitute a qualitative assessment under the arguments of rejection. Even if that is true, it is a modality switch that is caused: "the new modality becomes current and the system's memory management shifts to re-center on the new current modality." As it is fixed values incorporated in the algorithm that control the buffer proportions, those proportions are not adjusted using a qualitative assessment of the student's mastery.

Furthermore, Boulton's buffer proportions are not weight values, as the buffer proportions have no influence on which strategies/modalities are presented in his system.

2. Claim 57 is rejected under 35 U.S.C. 103 as being obvious by the combination of U.S. Pat. No. 4,985,697 ("Boulton") and U.S. Pat. No. 5,727,950 ("Cook"). The arguments of rejection point to col. 12, lines 20-23 (disclosing an agent that has an adaptive model of a student's pedagogic characteristics) and col. 39. lines 27-49 (disclosing an interaction between an agent, rules, a policy filter table, past student performance, a student pedagogic model and incoming event messages.)

Applicants traverse this rejection on grounds that neither Boulton nor Cook discloses the adjusting of weight values using qualitative assessments of a student's mastery. For Boulton, this was addressed above.

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Of note, Cook discloses "moving average functions, in which recent values are given higher weight than earlier values, can be used advantageously to generate baselines of performance and timing" in his ABI system. (col. 28 lines 45-48.) Those baselines, however, do not appear to affect the choice of instructional strategies in his system, but rather operate to control "meta-responses", which Cook defines to be "all responses to a student produced by the agent software" (col. 28 lines 48-62 and col. 9 lines 65-67.) This explains, at least in part, the adaptive models used by the agent as disclosed in col. 12 lines 20-23.

For Cook, rules contained in the decision weight table and in a selection criteria table are applied in a filtering operation to a set of proposed candidate agent actions, producing a final list of agent actions (col. 39, lines 35-38.) The final actions can cause an update of a student data object with new current performance and behavior. (col. 39, lines 38-40.) Applicants address two possible theories of correspondence to weighted values.

In the first theory, the weighted values of the decision weight table correspond to the weight values as claimed. A decision weight table is described from col. 56 line 44 to col. 57 line 8. Note that in figure 7, that table (numbered 709) has no arrow indicating input, but rather only output to "agent action processing" 711. Furthermore, a review of the specification from col. 53 line 56 to col. 54 line 51 shows that the decision weight table is formed in connection with the instructional materials, and is therefore not intended to be adjusted in the course of presentment to a student. There is no indication in Cook that a decision weight table is adjustable after it is created, and therefore no weight values adjusted using a qualitative assessment of student mastery is disclosed thereby.

In the second theory, the student data object 712 would contain the weighted values. Support for this theory would presumably rely on the disclosure from col. 48 lines 19 to col. 50 line 53. In that section is described "performance data, for example, means and weighted moving averages, permits the agent to determine whether student performance is improving or declining." (col. 49 lines 14-17.) Also described is a "hint effectiveness parameter" that is used for agent decision

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weighting. (col. 50 lines 7-20.) Although inherently a hint effectiveness or other performance data might be made to influence future agent behavior, those are not weight values to an instructional strategy as claimed.

Neither Boulton nor Cook discloses the adjusting of weight values using qualitative assessments of a student's mastery, and claim 57 is therefore allowable. This limitation is also included in all of claims 58-75, which must therefore be allowable over Cook and Boulton.

3. Claims 58, 61-62, 64-65, 68, 70-71, and 74-75 are rejected under 35 U.S.C. 103 as being unpatentable over U.S. Pat. No. 4,985,697 ("Boulton") in view of U.S. Pat. No. 5,727,950 ("Cook").

Claims 64 and 70 are rejected under the allegation that Cook discloses an educational system wherein the type of instruction presented is based partly by available bandwidth considerations, pointing to col. 16 lines 17-25. A careful reading of that section shows that Cook considers only a "pre-fetch buffer or a read-only cache." Additionally, Cook does not disclose a bandwidth setting, only that his cache can improve performance if there is low bandwidth available. The interaction with the student with regard to the information presented would not change, or, using the language of claim 70, the choice of instructional strategies would not favor those instructional strategies that require an available bandwidth below a bandwidth setting. Claims 64 and 70 are therefore allowable.

Claims 58, 65 and 71 are rejected under the allegation that Boulton discloses the assigning a rating regarding the relative strength for a particular student of each presented instructional strategy associated with a concept, pointing to col. 4, lines 21-32. However that reference does not disclose any rating relationship between concepts and instructional strategies. These claims are therefore allowable.

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Claims 61 and 74 are rejected under the allegation that Boulton discloses the feature of preparing an assignment for the student to perform. In the reference pointed to, col. 8 lines 58-64, only "quizzes or tests" are mentioned. Assignments are not mentioned.

Claims 62, 68 and 75 are rejected under the allegation that it would have been obvious to modify Boulton's system, which used telephone lines in a custom communication protocol, to use a web browser and the Internet at the time the invention was made. The arguments do not point to any reference for that allegation, and applicants believe that that argument may use impermissible hindsight. In any case, the Office is required to produce a reference supporting that allegation if a prima facie case is to be constructed.

Finally, claim 70 includes the language "choosing instructional strategies in a random pattern, the choice of strategies favoring the use of those instructional strategies having a weight indicating a greater likelihood of greater success of the student's instruction", which is imported into claims 71 and 74-75 as those are dependent on claim 70. The Office has indicated that claims including this language are allowable, and applicant believes that the rejection of these claims was in error.

4. Claims 59-60, 66-67 and 72-73 are rejected under 35 U.S.C. 103 as being unpatentable over U.S. Pat. No. 4,985,697 ("Boulton") in view of U.S. Pat. No. 5,727,950 ("Cook") and further in view of U.S. Pat. No. 6,285,993 ("Ferrell"), with allegations that Ferrel discloses the generating of a student profile (pointing to col. 3, lines 13-19) and tracking the frequency of the selection of instructional strategies (pointing to col. 4 lines 15-22). Ferrell, in col. 3 lines 13-19, discloses the generation of "a learning style profile report", but that report is generated using "the inputs from the person" and Ferrel does not there disclose that ratings of the instructional strategies are generated or applied to his profile reports. Ferrell, in col. 4 lines 15-22, discloses that the method of selection (clicking on a graphic, clicking on text, typing on a keyboard or speaking through a microphone) by the user is measured. But these are not instructional strategies, as these activities provide no instruction to the student. They are methods of input. For these reasons these claims are allowable in light of the cited references.

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Additionally, claims 72 and 73 depend on claim 70, which includes allowable subject matter as indicated above.

5. Claims 63 and 69 are objected to as being dependent on a rejected base claim, but the Office indicates they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants have added new claim 76 that includes all the limitations of prior claim 63, and claim 82 that includes all the limitations of claim 69. Applicants have added claims 77-81 and 83-86 that depend on either of new claims 76 or 82, which thereby include the limitations of either prior claims 63 or 69. Applicants have further canceled claims 63 and 69, rendering this objection moot.

6. The office indicates that applicants' prior arguments with respect to claims 57-75 have been considered. Applicants thank the Office for its careful consideration.

7. U.S. Pat. No. 5,692,906 ("Corder") is made of record and not relied upon, and considered pertinent to the disclosure of this application. Applicants have reviewed Corder and do not believe it is determinative as to patentability, and make no further comment.

Applicants have amended the claims with only the purpose of advancing the application to allowance, even though applicants believe that patentable subject matter was claimed in the canceled claims. Applicants therefore reserve the right to continued prosecution of the subject matter of the canceled claims in future continuation or continuation-in-part applications, and surrender no subject matter by this paper.
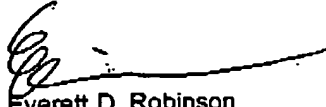
The applicant's representative would be grateful to be contacted at the below telephone number, should there be any questions concerning the above.

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Serial No. 09/821,009   **Response to non-final office action**   Examiner: Cameron Saadat
                                                                           Group Art Unit: 3713

Respectfully submitted this _6_ day of May, 2005.

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